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P6915



PLANT IMMIGRANTS

No. 204

April, 1923

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Foreign Seed and Plant Introduction

EXPLANATORY NOTE

This circular is made up principally of notes received from agricultural explorers, foreign collaborators, and correspondents, concerning the more important plants which have been received recently by the Office of Foreign Seed and Plant Introduction. It also contains reports on the behavior of plants which have been introduced in previous years.

Descriptions appearing here are revised and later published in the Inventory of Seeds and Plants Imported,-- the permanent record of plant introductions made by this Office.

Plant Immigrants should be considered merely an ANNOUNCEMENT OF THE ARRIVAL OF PLANT MATERIAL. As a rule all material is propagated before being distributed; this may require several years.

The Annual Catalogue of New Plant Introductions describes briefly the plants available for distribution. Application for seeds or plants listed in Plant Immigrants may be sent at any time, however, and will be filed in the order of their receipt. When material is ready for distribution, these requests will be given first attention; if their number is sufficient to exhaust the available supply of a given species, it will not be included in the Annual Catalogue.

Plant breeders and experimenters who desire plants not available in this country are invited to correspond with this Office which will endeavor to secure the required material through its agricultural explorers, foreign collaborators, or correspondents.

DAVID FAIRCHILD
Agricultural Explorer in Charge,
Office of Foreign Seed and Plant Introduction.

Issued June 16, 1923. Washington, D. C.

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ACER spp. (Aceraceae), 56288-56291. **Maple.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56288. **ACER DAVIDI.** "(No. 6799. October, 1922.) A very attractive maple, 50 to 60 feet in height, found on the Likiang Snow Range at an altitude of 10,000 feet. It has large, oval, heart-shaped, coarsely toothed leaves and long pendent clusters of samaras."

56289. **ACER** sp. "(October, 1922.) A tall, stately tree, 50 to 80 feet high, with a straight trunk, found among limestone boulders back of Nguluke on the Likiang Snow Range at an altitude of 9,600 feet. The rather small leaves are 5-lobed, and the samaras are in erect spikes."

56290. **ACER** sp. "(No. 6806. October, 1922.) A tall tree 70 to 80 feet high, with a dense round crown, from the western slopes of the Likiang Snow Range on the Ashi Road at an altitude of 11,000 feet. The leaves are large and 3-lobed, and the samaras are borne in stout drooping clusters."

56291. **ACER** sp. "(No. 6834.) A handsome evergreen maple, 70 to 80 feet in height with a huge crown, found at an altitude of 8,000 feet in the forest between Hpunkaw and Mengka, one and a half days' travel from the Burmese Kachin Hills. The trunk is more than 3 feet in diameter, and the branches descend almost to the ground."

ALLIUM sp. (Liliaceae), 56596. **Onion.** From Tengyueh, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "'Tsung.' A variety resembling our small spring onion; it does not form a bulb." (Rock.)

AMARANTHUS CAUDATUS (Amaranthaceae), 56611. From Nioka, Ituri, Belgian Congo. Seeds presented by Jean Claessens, Ferme Experimentale du Haute Ituri. "'Lenga-lenga,' an interesting plant from which the natives prepare a flour which is made into dough and cooked. The plants become 70 or 80 cm. high, with a rather open habit, and the fruiting panicles are red, yellowish, or yellowish with reddish striae." (Claessens.)

BENZOIN sp. (Lauraceae), 56292. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(Nos. 6723 and 7010. November, 1922.) A tree 35 feet high, with a spreading crown, common around Tengyueh and along the Taping River. The trunk is sometimes a foot or more in diameter, usually smaller; the leathery, aromatic leaves are dark green and glossy. From the scarlet, 1-seeded fruits, borne in short clusters, is obtained a white, oily liquid used to make a yellow wax. This wax is used for burning, for keeping leather soft, and for other household purposes." (Rock.)

BERBERIS DICTYOPHYLLA (Berberidaceae), 56293. **Barberry.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6804. October, 1922.) A spiny shrub, 6 to 8 feet high, found on alpine meadows of the Likiang Snow Range at an altitude of 12,000 feet. It is very ornamental, with yellow flowers and red fruits." (Rock.)

BILLARDIERA LONGIFLORA (Pittosporaceae), 56562. From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. A twining shrub, sometimes many feet in length, with leaves varying in shape from oval to linear and solitary flowers which are greenish yellow, often changing to purple. It is found in thickets and along watercourses in New South Wales, Victoria, and Tasmania. (Adapted from Benthams, *Flora Australiensis*, vol. 1, p. 123.)

BRASSICA spp. (Brassicaceae), 56597-56599. From Tengyueh, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56597. "(No. 7814.) 'Hsiao petsai' (small white cabbage). A stout lettuce-shaped 'cabbage' with compact leaves, dark green above: the snow-white base, up to 4 inches broad, extends up into the dark-green leaf blades and forms prominent white ribs. The roots are short and stout."

56598. "(No. 7815.) 'Ta petsai.' A large oblong 'cabbage,' resembling the following, No. 7813 (S.P.I. No. 56599). The very large, oblong leaves are pale green, and the broad base and midribs are snow-white. This is a succulent vegetable, cooked as we cook cabbage."

56599. "(No. 7813.) 'Tsin tsai' (green cabbage). A green 'cabbage' with leaves 2 feet or more in length and a foot broad, green throughout, including the thick sessile base. The root is turnip shaped but divided. This variety is cooked as we cook cabbage."

BUDDLEIA FORRESTII (Loganiaceae), 56294. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6816. October, 1922.) A very attractive shrub found only in limestone soil on the Likiang Snow Range at an altitude of 10,000 feet. It has white-woolly leaves and spikes of lavender-blue flowers." (Rock.)

BUXUS sp. (Buxaceae), 56295. **Box.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6793. October, 1922.) A very handsome shrub about 5 feet high, which grows among limestone boulders on the Likiang Snow Range at an altitude of 11,000 feet. The small, elliptical leaves are bright green." (Rock.)

CATANOPSIS spp. (Fagaceae), 56296-56297, 56300, 56489. Chestnut. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56296. "(No. 6751. October, 1922.) A tall tree, 70 to 80 feet in height, found on the slopes of the Likiang Snow Range at an altitude of 10,000 feet. The thick, leathery leaves are silvery beneath and the small, edible nuts are sweet."

56297. "(No. 6768. November 30, 1922.) One of the finest and largest species of *Catanopsis* in Yunnan; it reaches 80 feet in height, with trunks 2 to 3 feet in diameter, and is found on the summit ridge of the Shweli-Salwin Divide at an altitude of 8,000 feet. It is a fine timber tree, free from disease. The small brown nuts are edible and sweet."

56300. "(No. 7007. Kuyung. November, 1922.) A tree 60 to 80 feet high, with a trunk 2 to 3 feet in diameter, found in the mountains north of Tengyueh at altitudes of 7,000 to 8,000 feet. The small, elliptical, dark-green leaves are thick and leathery and the burs, an inch in diameter, are covered with branched spines. Each bur contains 2 or 3 brown, pubescent, sweet, edible nuts."

56489. "(No. 6739. November 29, 1922.) A fine tree, 60 to 80 feet tall, with a straight trunk 2 to 3 feet in diameter, found in an oak and pine forest in the Shweli Valley, between Chiangtso and Linchiapu, on the Shweli-Salwin watershed, two days' travel north of Tengyueh, at an altitude of about 7,000 feet. In this region, at this time of the year, there is frost every night.

"The slightly crenate leaves are oblong, silvery glaucous beneath and dark green above, and the small burs, with short thick spines, are in axillary spikes 4 or 5 inches long. The small nuts are at first brown, later becoming black, and are sweet in taste."

CASUARINA SUBEROSA (Casuarinaceae), 56564. From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. A tree 30 to 40 feet tall, quite similar to *Casuarina equisetifolia*, with smooth, slender branchlets. It is considered a valuable fodder tree in the interior districts which are subject to drought. The wood is of great beauty for cabinetwork, but should be used only in veneers, as it is apt to split in drying. (Adapted from Maiden, Useful Native Plants of Australia, pp. 122, 399, and from Bentham, Flora Australiensis, vol. 6, p. 197.)

CERVICINA GRACILIS (Campanulaceae), 56565. From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. A very variable species, either a slender annual 6 to 18 inches high or a perennial with a rootstock which is almost woody. The leaves vary in shape from oval to linear and the blue

flowers, up to an inch across, are borne singly on long stems. The plant is native to many parts of Australia, extending to New Zealand and perhaps to the East Indies. (Adapted from Bentham, *Flora Australiensis*, vol. 4, p. 137.)

CORNUS CAPITATA (Cornaceae), 56302. **Bentham's cornel.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 7008. Kuyung. November, 1922.) From the mountains north of Tengyueh at an altitude of 7,000 feet.

"A tree 30 feet high, with a trunk a foot or more in diameter, or at times shrubby. The fruits, about 2 inches in diameter, are strawberrylike in shape and color, and have sweet, yellow, edible flesh. They are very popular with the natives, and are often sold in the markets." (Rock.)

CORYLUS sp. (Betulaceae), 56490. **Filbert.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6756. October, 1922.) A tree 50 feet high, with trunks 2 or 3 feet or more in diameter, found wild among limestone boulders and humus on the Likiang Snow Range at an altitude of 10,000 feet. The nuts are large and edible." (Rock.)

COTONEASTER FRIGIDA (Malaceae), 56450. From Elstree, Herts, England. Seeds presented by Vicary Gibbs, Aldenham House Gardens. Variety "vicarii." This is an improved form with deep-green leaves, grayish beneath, and large clusters of rich-red berries which are larger and brighter than those of the typical species. (Adapted from *Gardening Illustrated*, vol. 42, p. 721.)

COTONEASTER spp. (Malaceae), 56303 and 56304. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56303. "(No. 6742. November 29, 1922.) A stiff, erect, very ornamental shrub 3 to 4 feet in height, found on the highest point of the Shweli-Salwin Watershed (altitude 11,000 feet), at a place called Hsuehshanting (summit of snow mountain), in company with rhododendrons and canebreak. Here, during the winter months, the mountains are covered with snow, and ice covers the pools and brooks all day. The reddish leaves are small and roundish and the oval, scarlet, persistent berries are half an inch in diameter."

56304. "(No. 6789. October, 1922.) A stout, ornamental prostrate shrub which creeps over limestone rocks on the Likiang Snow Range at an altitude of 10,000 feet. The very small, elliptical leaves are dark green and the small berries are red."

CUPRESSUS sp. (Pinaceae), 56305. **Cypress.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6802. Peshwe. October, 1922.) A tall tree, 40 to 50 feet high, with a stout trunk, found on margins of meadows north of Nguluke at an altitude of 11,000 feet."(Rock.)

DANTHONIA SEMIANNULARIS (Poaceae), 56566. **Grass.** From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. Spreading through the pastures, this native grass, known as "Wallaby grass," is becoming very popular, and rightly so. It is a perennial tufted grass, producing a fair amount of soft succulent fodder suitable for either sheep or cattle. The leaves are narrow, usually hairy, and light green. The flower stems grow about 2 feet high and the seed, which sheds easily, is produced in clusters that have a white woolly appearance when ripe. "Wallaby grass" provides good pasturage during the spring and summer and remains green in the winter months. (Adapted from The Agricultural Gazette of New South Wales, vol. 28, p. 286.)

DIOSPYROS spp. (Diospyraceae), 56308 and 56309. **Persimmon.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56308. "(Tengyueh. November 24, 1922.) A large, spreading tree 50 feet tall, with a huge crown, found in the vicinity of Tengyueh where it freezes every night during the cold season. It is a fine shade tree. The yellow fruits are the size of cherries."

56309. "(No. 6787. October, 1922.) A wild persimmon which grows as a tall, spreading tree on the dry slopes back of Likiang at an altitude of 8,400 feet. The small, oval fruits are black."

EUCALYPTUS REGNANS (Myrtaceae), 56567. From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. A large tree, the largest, in fact, in Australia; trees 300 feet tall are known in Victoria, and Mueller states that frequently a height of 400 feet is reached. The trunks are whitish and very straight, and the narrow leaves, shining on both sides, are of rather thin texture. The wood is well adapted for shingles, planking, and general construction. (Adapted from Maiden, A Critical Revision of the Genus Eucalyptus, vol. 1, p. 183.)

GLADIOLUS SEGETUM (Iridaceae), 56629. From Nice, France. Seeds presented by Dr. A. Robertson Proschowsky. "One of the most beautiful wild flowers around here; it might be very valuable for hybridizing." (Proschowsky.)

A European gladiolus of free habit, fond of warm dry soil and a

sunny situation, with rather small rose-purple flowers. It is an admirable species for mixed borders. (Adapted from Robinson, English Flower Garden, p. 577.)

INDIGOFERA PENDULA (Fabaceae), 56315. **Indigo**. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6798. October, 1922.) An exceedingly ornamental shrub 10 to 15 feet high, with long racemes of bluish purple flowers, found on the Likiang Snow Range at an altitude of 10,000 to 11,000 feet." (Rock.)

KENNEDIA PROSTRATA (Fabaceae), 56576. From George's Bay, Tasmania. Seeds presented by Dr. Arthur H. Clarke. "Creeping, about 2 feet long, with pink to scarlet flowers." (Clarke.)

A prostrate or sometimes twining hairy perennial, with leaves composed of three roundish leaflets less than an inch long and scarlet flowers, usually solitary, nearly three-fourths of an inch long. Native to most parts of Australia. (Adapted from Bentham, Flora Australiensis, vol. 2, p. 250.)

KETELEERIA sp. (Pinaceae), 56316. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6321. October, 1922.) A handsome tree 50 feet in height, with light-green foliage and long oblong cones, found on the Sungkwe Pass, Hoching Range, two day's travel from Likiang, at an altitude of 11,000 feet." (Rock.)

LACTUCA SATIVA (Cichoriaceae), 56601. **Lettuce**. From Tengyueh, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 7817.) 'Oh soon.' A peculiar vegetable of which the thick inner stalk is eaten; this stalk is about 2½ feet long and 2 inches in diameter, and it is cut into slices and boiled. The leaves are discarded, as they are bitter." (Rock.)

LIGUSTRUM spp. (Oleaceae), 56317 and 56318. **Privet**. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56317. **LIGUSTRUM IONANDRUM**. "(No. 6810. October, 1922.) A very compact shrub 10 to 12 feet high, found among limestone boulders back of Nguluke on the Likiang Snow Range at an altitude of 10,000 feet. It has elliptical leaves and short terminal clusters of cream-colored fragrant flowers."

56318. **LIGUSTRUM** sp. "(No. 6803. October, 1922.) A tree 40 to 50 feet high, with a trunk 1 to 2 feet in diameter, which grows along watercourses on the Likiang Snow Range at an altitude of 8,500 feet. The small fragrant cream-colored flowers are in large panicles."

LITSEA sp. (Lauraceae), 56319. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6814. October, 1922.) An ornamental aromatic shrub 10 to 15 feet high, found on the Likiang Snow Range at an altitude of 10,000 to 11,000 feet." (Rock.)

MALUS spp. (Malaceae), 56321-56323, 56325. **Apple.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56321. *MALUS YUNNANENSIS*. "(No. 6764. October, 1922.) A tree 30 to 40 feet high, which grows among limestone boulders along watercourses on the Likiang Snow Range at altitudes of 10,000 to 12,000 feet. The large, oval heart-shaped, coarsely toothed leaves are hairy beneath and the yellowish crimson fruits, an inch in diameter, are in large clusters. One of the handsomest trees of the Likiang Snow Range."

56322. *MALUS* sp. "(No. 6753. October, 1922.) A tree 60 to 80 feet in height, with stout straight branches, which grows on the slopes of the Likiang Snow Range at an altitude of 12,000 feet. The dark-green leaves are silvery beneath and the oval, yellow fruits have sour, fragrant flesh and large seeds. The tree is very ornamental."

56323. *MALUS* sp. "(No. 6758. October, 1922.) A tree 35 to 40 feet high which is found on the Likiang Snow Range at altitudes of 10,000 to 11,000 feet. The reddish green, strongly veined leaves are whitish beneath and the numerous fruits are in large clusters."

56325. *MALUS* sp. "(No. 6821. November 30, 1922.) A hardy tree 15 to 20 feet in height, found in dense forest on the Salwin Ridge at an altitude of 8,000 feet. The oblong leaves have red veins and petioles and the calyx portion of the oval, yellow fruits is drawn out into a beak. The fruit flesh is firm and sour."

MECONOPSIS RUDIS (Papaveraceae), 56327. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6797. October, 1922.) An alpine plant found on limestone gravel on the Likiang Snow Range at altitudes above 16,000 feet. The glaucous leaves are covered with red spines and the satiny blue flowers, 2 inches across, completely cover the spikes which are 2 feet in length." (Rock.)

MEIBOMIA sp. (Fabaceae), 56387. From Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6783. October, 1922.) An ornamental bush 10 feet high, with very attractive deep-pink flowers, found on the western and eastern slopes of the Likiang Snow Range at an altitude of 10,000 feet." (Rock.)

OLEA spp. (Oleaceae), 56328 and 56329. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56328. "(No. 6737. November 21, 1922.) A large tree 50 feet high, with a trunk a foot in diameter and whitish bark, which grows wild in the forests beyond Wolung and Chienmachin, north of Tengyueh. The narrowly oblong, leathery leaves are dark green and the small, oval, bluish black, juicy fruits are borne in clusters below the leaves."

56329. "(No. 6741. November 29, 1922.) A tree 30 feet or more in height, found in the Shweli Valley, two days' travel northeast of Tengyueh, near Chiangtso and Chuchi. It has elliptical leaves and small, oval, bluish black, juicy fruits."

ORYZA SATIVA (Poaceae), 56554. Rice. From Manila, Philippine Islands. Seeds presented by Adn. Hernandez, director, Bureau of Agriculture. "(No. 5.) 'Cayading a Nalabaga.' A white, bearded, non-glutinous variety tested for 4 years under lowland conditions at the Rosales Rice Station, Rosales, Pangasinan. It matures usually in 187 days and the average yield per hectare is 2,502 kilograms (approximately 2,200 pounds per acre)." (Hernandez.)

PHOTINIA spp. (Malaceae), 56330 and 56331. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56330. "(No. 6800. October, 1922.) A tree 25 feet high from the western slopes of the Likiang Snow Range, in the Ashi Road Forest, at an altitude of 10,000 to 11,000 feet. The flowers are white and the small orange-red fruits are in large terminal panicles."

56331. "(No. 6815. October, 1922.) An ornamental shrub 5 to 6 feet high, from limestone meadows in the Likiang Snow Range. It has very narrow leaves and clusters of dark-carmine fruits."

PIERIS sp. (Ericaceae), 56332. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 7660. November 27, 1922.) A shrub 6 to 8 feet high, with white flowers, collected on the summit of Hsuehshanting at an altitude of 11,000 feet." (Rock.)

PINUS ARMANDI (Pinaceae), 56333. Pine. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6792. Likiang. October, 1922.) A pine tree 90 feet or more tall, with a straight trunk, common at altitudes above 8,000 feet in the northern part of Yunnan; also from the Black River Valley to Talifu and Likiang." (Rock.)

PRIMULA FORRESTII (Primulaceae), 56334. **Primrose.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6811. October, 1922.) A perennial plant which becomes 50 years or more in age, with a thick, woody rootstock, found among rocks and under trees in rich soil and also among limestone boulders on the Likiang Snow Range, at an altitude of 11,000 to 12,000 feet. The large basal leaves have a fresh apple odor and the rich orange-yellow flowers are in large umbels." (Rock.)

PRUNUS sp. (Amygdalaceae), 56335. **Cherry.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6782.) A tree 35 to 40 feet high, which grows on the road from Ashi to the Yangtze River, Likiang Snow Range, at an altitude of 10,000 feet. The globose, bluish black fruits are in drooping clusters." (Rock.)

PYRUS spp. (Malaceae), 56340, 56343, 56344, 56347, 56491. **Pear.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56340. **PYRUS** sp. "(No. 6757. October, 1922.) A very handsome tree 35 to 40 feet high, which grows among limestone boulders along watercourses on the lower slopes of the Likiang Snow Range at 10,000 feet altitude. The handsome leaves are dark green above and white beneath, with serrate margins and sharp points, and the fruits are small, oval, and red."

56343. **PYRUS** sp. "(No. 6763. October, 1922.) A tree 40 feet high from the Likiang Snow Range, where it grows at an altitude of 14,000 feet. The large, oblong, coarsely toothed leaves are dull green above and white beneath and the small, globose, yellow fruits, the size of bullets, are in corymbs."

56344. **PYRUS** sp. "(No. 6765. October, 1922.) A wild pear which grows on the road from Ashi to the Yangtze River, Likiang Snow Range, at an altitude of 10,000 feet. It is a tree 30 feet high, with large, smooth, dark-green leaves and fruits $2\frac{1}{2}$ inches in diameter, yellow with small russet rings and spots."

56347. **PYRUS** sp. "(No. 6823. Chinho. October, 1922.) A wild pear collected two days' travel south of Likiang, where it grows as a tree 30 to 40 feet in height, with oval-elliptic leaves and small, spotted, russet-brown fruits the size of bullets. This is used as a stock plant."

56491. **PYRUS** sp. "(November, 1922.) A fine tree with a dense round crown, from the mountains near Puerhfu. The white flowers are borne in great profusion and the fruits remain for a long time on the tree, becoming black and sweet. This is the species used in southern Yunnan as a stock for cultivated pears. Obtained through Miss Clara Petersen, of the Puerhfu Mission."

QUERCUS spp. (Fagaceae), 56349, 56350, 56352, 56354. **Oak.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56349. QUERCUS sp. "(No. 6794. Ashi. October, 1922.) A tree 50 feet tall, with a trunk 3 feet in diameter, found on the Likiang Snow Range in dry regions near the Yangtze River at an altitude of 9,000 feet. The small pale-green leaves are obovate and the small acorns have papery involucre."

56350. QUERCUS sp. "(No. 6817. October, 1922.) A tree 50 to 60 feet tall, from the western slopes of the Likiang Snow Range on the road from Ashi to the Yangtze River, at an altitude of 11,000 feet. It has large, sessile, oblong-oval, lacinate leaves and small, edible, sweet acorns."

56352. QUERCUS sp. "(No. 7004. Kuyung. November, 1922.) A tall tree, 70 to 80 feet in height, with trunks 3 to 4 feet in diameter, which grows in sandy soil in the mountains north of Tengyueh, at an altitude of 7,500 feet. The numerous acorns are borne in dense spikes 5 or 6 inches long, the involucre inclosing the acorn."

56354. QUERCUS sp. "(No. 7009. Kuyung. November, 1922.) A tall tree, 70 to 80 feet in height, with large straight trunks 3 or 4 feet in diameter, which grows in the mountains north of Tengyueh at an altitude of 7,000 to 8,000 feet. The acorns are inclosed in conical involucre and are borne in stout, densely packed spikes."

RAPHANUS SATIVUS (Brassicaceae), 56602. **Radish.** From Tengyueh, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 7816.) 'Water radish.' A large snow-white, oblong radish 3 feet long and 5 inches thick, cooked like kohlrabi." (Rock.)

RHODODENDRON spp. (Ericaceae), 56355-56358, 56360, 56362-56364. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56355. RHODODENDRON DELAVAYI. "(Nos. 3012 and 6743. November 27, 1922.) A small tree, 15 to 20 feet or more in height, common throughout Yunnan; these seeds were collected on the Salwin-Shweli Watershed at an altitude of 8,000 feet. The stiff, spreading, narrow leaves are brownish beneath and the crimson flowers are in large terminal heads."

56356. RHODODENDRON FORTUNEI. "(No. 6829. October, 1922.) A shrub or small tree, 15 to 20 feet in height, with a trunk a foot in diameter, which grows on the Likiang Snow Range at altitudes of 9,000 to 11,000 feet. The leaves are large and smooth and the large, exceedingly handsome, fragrant, light-pink flowers are in large terminal clusters."

56357. RHODODENDRON HELIOLEPIS. "(No. 6828. October, 1922.) A



THE GRUMICHAMA AS IT GROWS IN FLORIDA.

(*Eugenia dombeyi* (Spreng.) Skeels, S. P. I. No. 37836.)

Although native to the tropical portions of Brazil, the grumichama has proved sufficiently cold resistant to be grown in the open at Miami, Fla. The specimen in the plant introduction garden at that place has attracted considerable attention during the last few years, particularly when in bloom. Its foliage is a beautiful lustrous dark green, and the abundant, delicately fragrant flowers are pure white. The fruit of the grumichama is the size of a cherry, dark red, with soft flesh of sweet, pleasant flavor surrounding a single large seed. (Photographed by David Fairchild, Miami, Fla., May 12, 1922.)



AN INTERESTING TROPICAL GRAPE.

(*Vitis* sp., S. P. I. No. 46787.)

The common wild grape of Mexico and Central America, *Vitis tiliacifolia*, produces very sour fruits scarcely larger than peas. The species is not, therefore, of great value for cultivation in tropical gardens, though it has possibilities when placed in the hands of the plant breeder. The *totoche* of the isthmus of Tehuantepec, on the other hand, is a good-sized fruit of pleasant vinous flavor, delicious to eat out of hand. Above is shown a plate of *totoches*; the fruits are dark maroon-purple, have a thick tough skin, and only two or three seeds. In general character they strongly suggest some of the grapes of the Muscadine group. The plant should be tried in gardens throughout the Tropics. (Photographed by Wilson Popenoe, at Tehuantepec, Oaxaca, Mexico, October 3, 1918; P17553FS.)

beautiful compact shrub, 10 to 15 feet high, which grows on the edge of alpine meadows in large groves at an altitude of 12,500 feet. In early spring the plant is one mass of flowers; these are lavender with the lower lip purple spotted."

56358. *RHODODENDRON TALIENSE*. "(No. 6832. October, 1922.) A shrub 15 feet high, which grows on the upper slopes of the Likiang Snow Range at altitudes of 15,000 to 15,500 feet among limestone boulders. The leaves are large and whitish mealy beneath and the large, light-pink flowers are in terminal clusters."

56360. *RHODODENDRON* sp. "(No. 6744. November 28, 1922.) A shrub or small tree which grows on the summit of the Salwin Ridge (Shweli-Salwin Divide), at altitudes of 10,000 to 11,000 feet in a forest one stage from Chiangtso. The pale-green oblong leaves are whitish beneath and the flowers, which vary from pink to red, are terminal. The fruits are black and hairy."

56362. *RHODODENDRON* sp. "(No. 6826. October, 1922.) A very handsome shrub 10 to 12 feet high, which occurs on the edge of alpine meadows on the Likiang Snow Range at altitudes of 14,000 to 15,000 feet. The leaves are small and elliptical and the rich-purple flowers, an inch and a half wide, are in terminal clusters."

56363. *RHODODENDRON* sp. "(No. 6827. October, 1922.) A shrub 6 to 10 feet high, found among limestone boulders on the Likiang Snow Range at an altitude of 11,000 feet. The leaves are small and elliptical, white beneath when young and the flowers, pink with spotted-red lower lips, are in terminal clusters."

56364. *RHODODENDRON* sp. "(No. 6830. October, 1922.) A shrub 2 feet high, found in rather dry situations in pine forests on the Likiang Snow Range at an altitude of 11,000 feet. It has small, elliptical leaves and small but handsome, bluish purple flowers."

RIBES spp. (Grossulariaceae), 56365 and 56366. **Currant**. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56365. *RIBES* sp. "(No. 6778. October, 1922.) A shrub, 5 feet high, with maplelike leaves and long, drooping racemes of large, oval, carmine fruits which have a subacid flavor. This shrub grows on the Likiang Snow Range at an altitude of 15,000 feet."

56366. *RIBES* sp. "(No. 6780. October, 1922.) A shrub 4 feet high which grows on the Likiang Snow Range at an altitude of 15,000 feet. The leaves are small and maplelike and the small, oval, black fruits, crowned by the persistent calyx, are insipid."

ROSA spp. (Rosaceae), 56367 and 56368. **Rose**. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56367. "(No. 6747. November, 1922.) A handsome climbing shrub 16 to 18 feet high, from the Likiang Snow Range at an altitude of 11,000 feet, near Yulungtsuin. The white flowers are 2 inches across and the fruits are oval and red."

56368. "(No. 6795. October, 1922.) A shrub 8 feet high, with small white flowers and round red fruits, found along the watercourses back of Nguluke on the Likiang Snow Range at altitudes of 9,000 to 10,000 feet."

RUBUS LUTESCENS (Rosaceae), 56369. **Raspberry.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6749. October, 1922.) This is perhaps the best raspberry of the Likiang Snow Range, where it grows as a small shrub a foot or two high, on the western slopes at an altitude of 15,000 feet. The leaves are small and the large, deep orange-yellow berries are sweet and very delicious." (Rock.)

SCHIZANDRA AXILLARIS (Magnoliaceae), 56370. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6825. October, 1922.) An ornamental climber which occurs in fir forests on the Likiang Snow Range at altitudes of 11,500 to 12,000 feet. The axillary flowers are magenta in color." (Rock.)

SMILAX sp. (Smilacaceae), 56371. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6746. November 29, 1922.) A handsome, climbing, thorny shrub which grows on the Shweli-Salwin Divide, in open scrub forest at altitudes of 6,000 to 7,000 feet. The leaves are small and oval and the berries scarlet." (Rock.)

SORBUS spp. (Malaceae), 56374 and 56376. **Mountain ash.** From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56374. **SORBUS** sp. "(No. 6776. October, 1922.) An ornamental tree 25 to 30 feet high, with large pinnate leaves, which grows on the road from Ashi to the Yangtze River, Likiang Snow Range, at altitudes of 10,000 to 11,000 feet. The white fruits are in large clusters."

56376. **SORBUS** sp. "(No. 6785. October, 1922.) A tree 20 feet in height which grows in forests of *Abies forrestii* on the Likiang Snow Range at an altitude of 12,000 feet. It is very ornamental because of the large clusters of round red berries."

SPINACIA OLERACEA (Chenopodiaceae), 56603. **Spinach.** From Tengyueh, Yunnan, China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 7812.) 'Po tsai.' The dull-green leaves are lyrate-sinuate, with sharp-pointed tips and lobes and

long-ribbed fleshy stems. The roots are turnip shaped. The leaves are cooked like our varieties of spinach. The seeds are sown in seed beds and set out in October or a little earlier, and are brought to market in December." (Rock.)

STIPA PUBESCENS (Poaceae), 56569. Grass. From Hobart, Tasmania. Seeds presented by L. A. Evans, Secretary of Agriculture, Agricultural and Stock Department. A tufted perennial grass, much relished by stock, found only in the wooded portions of Australia, where it seeds in October. The seed heads differ from those of other species of *Stipa* in being a rich brown. (Adapted from Maiden, *Useful Native Plants of Australia*, p. 111.)

TACSONIA LANATA (Passifloraceae), 56592. From Bogota, Colombia. Seeds presented by Brother Ariste Joseph, Instituto de la Salle. An evergreen climbing plant, native to Colombia. All parts of the plant are covered with a downy wool, and the narrowly heart-shaped leaves resemble those of the mullein. The long, slender, salmon-pink flowers are borne singly on short stems, and the fruit is said to be edible. (Adapted from *Annales du Museum d'Histoire Naturelle*, Paris, vol. 6, p. 392, and from field note of Wilson Popenoe.)

TILIA sp. (Tiliaceae), 56377. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6801. October, 1922.) A tree 35 to 40 feet high, with large heart-shaped leaves and fragrant flowers, found along watercourses among limestone boulders on the Likiang Snow Range at altitudes of 11,000 to 12,000 feet." (Rock.)

VACCINIUM sp. (Vacciniaceae), 56378. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. "(No. 6796. October, 1922.) A bushy shrub 2 to 3 feet high, found under pine trees on the Likiang Snow Range at altitudes of 10,000 to 11,000 feet. The small black berries are edible." (Rock.)

VIBURNUM spp. (Caprifoliaceae), 56379-56381, and 56385. From China. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56379. *VIBURNUM* sp. "(No. 6770. October, 1922.) A handsome shrub 15 feet high from alpine meadows and steep slopes of the Likiang Snow Range, where it grows at an altitude of 12,500 feet. It has small, wedge-shaped leaves and large corymbs of crimson or carmine berries."

56380. *VIBURNUM* sp. "(No. 6771. October, 1922.) A very attractive shrub 4 feet in height, with maplelike leaves, found growing among limestone boulders in the Likiang Snow Range at an altitude of 15,000

feet. The oval, crimson berries are in loose panicles."

56381. *VIBURNUM* sp. "(No. 6772. October, 1922.) A handsome shrub or small tree 15 feet high, with smooth, oval leaves and small drooping clusters of scarlet berries, found on the slopes of the Likiang Snow Range at an altitude of 12,000 feet."

56385. *VIBURNUM* sp. "(No. 6820. November 30, 1922.) An exceedingly handsome shrub 20 feet tall, with large, oval leaves and huge terminal clusters of large transparent scarlet berries, found on the summit of the Salwin Ridge at an altitude of 8,000 feet. The juice is used by the natives in pickling turnip leaves."

WASABIA PUNGENS (Brassicaceae), 56438. From Yokohama, Japan. Plants purchased from the Yokohama Nursery Company. A Japanese perennial belonging to the mustard family, with large, bright-green, heart-shaped, long-stemmed leaves and white flowers borne in clusters on a flowering stalk over 3 feet high. The long roots are about an inch in diameter, grayish, with many knots. In the humid valleys in Japan this plant is often spontaneous, and it is much cultivated on the banks of little streams near dwellings. The grated roots are used in the same manner as ordinary horse-radish, and by many are considered to be superior in all ways. (Adapted from Vilmorin-Andrieux & Co., *Les Plantes Potageres*, p. 646.)

ZIZIPHUS spp. (Rhamnaceae), 56493 and 56634. Seeds collected by J. F. Rock, Agricultural Explorer of the Bureau of Plant Industry. Quoted notes by Mr. Rock.

56493. *ZIZIPHUS* sp. From China. "(No. 6824. October, 1922.) A handsome, spreading tree 30 feet high, with a round crown, found above Yangpi, 2 days' travel from Talifu, at an altitude of 7,500 feet. The leaves are large, oval, and finely serrate and the tree was loaded with olive-shaped drupes."

56634. *ZIZIPHUS* sp. From Upper Chindwin, Northwest Burma. "(January 6, 1923.) A tree 40 feet high, with a stout trunk $1\frac{1}{2}$ feet in diameter, found in a very dry region on the Mytha River near Kalewa, Upper Chindwin. The very small, round leaves are less than an inch wide and the small, globose, yellowish red drupes, less than an inch in diameter, have large stones and very scanty flesh."

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